

Project Business Case

Project Name: Statewide Seamless Base Map

Project Short Name: BMAP

Agency: Department of Emergency Services

Business Unit/Program Area: Division of State Radio

Type of Project: New Initiative

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Project Description:

To obtain a statewide, seamless, spatially accurate, and complete base map dataset of the State of North Dakota that is to be accessible by all state agencies, local and tribal governments, the commercial sector, and the general public.

The State, local and tribal governments, and the private and public sectors would benefit from a seamless base map data set that is spatially accurate and contains the necessary attributes to be used by multiple applications and users that have a need to leverage mapping services.

Business Need/Problem:

In particular, such a dataset is needed for emergency services in order to provide the most accurate and efficient means of map-based emergency management activities across disparate public safety answering points (PSAPs) and other jurisdictional entities. In terms of Emergency Management, this base map will become the foundational element of the Computer Aided Dispatch system.

Specific improvements over the current system that will result from implementing the new map include:

- Accurately defined emergency response zones statewide
- Ability to visualize locations via landmarks on a photographic map
- Ability to measure area and distance more accurately
- Different jurisdictions will have a single, highly accurate data set for mapping that stems from a single, common datum standard
- Decreases in response times for emergency dispatch
- Better accuracy in dispatch (currently, at least two or three times per month units are dispatched either to the wrong place, or the wrong response unit is dispatched, all due to mapping inaccuracies)
- Elimination of paper maps
- Better dissemination of emergency information via reverse-911

Solution (as described in Proposed Solution):

A statewide, seamless, spatially accurate, and complete base map dataset of the State of North Dakota.

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- Please note that a base map's typical characterization from a GIS perspective is as a map consisting of roads, county boundaries, water features, locations of cities, and similar types of data elements. In the particular case of this project, however, this data consists of high-resolution aerial photography and road centerlines.

Consistency/Fit with Organization's Mission:

The mission statement of the North Dakota Department of Emergency Services is:

"The N.D. Department of Emergency Services (NDDDES) has 54 legislatively authorized positions. It is comprised of the Divisions of Homeland Security and State Radio. The Department provides 24/7 emergency communications and resource coordination with more than 50 lead and support agencies, private enterprise and voluntary organizations to assist local jurisdictions in disaster and emergency response activities. It administers federal disaster recovery programs and the Homeland Security Grant Program. NDDDES also manages the Emergency Management Assistance Compact (EMAC) that serves as a national clearinghouse through which member states may request and provide mutual aid assistance.

Each community maintains a direct responsibility for the safety of its citizens. Local and tribal governments provide initial response to incidents, emergencies, disasters or catastrophes. Local Emergency Managers serve a key role in coordinating response and recovery efforts and offer a better understanding of the situation and accompanying resource requirements. NDDDES supports response and recovery coordination with Emergency Managers in each county and tribal nation within the state of North Dakota as well as the cities of Bismarck and Fargo."

This project supports the NDDDES' mission by providing an accurate public safety mapping system to Federal, State, and local agencies that will enhance the potential for public safety in the ways defined in the Cost Benefit Analysis.

Cost Benefit Analysis

The core benefits/driving factors for sponsoring the project.

Anticipated benefits to emergency services and public safety

- Will assist in providing emergency responders the fastest and safest route to an emergency scene
- Will provide more accurate information regarding jurisdictional boundaries, allowing better accuracy in dispatching the proper resources
- One of the technical foundations of a dispatching system is the mapping system. By improving the detail and accuracy of the base map, you are improving the dispatch process.
- Assists in achieving interoperability in that one map will be available for use by many jurisdictions during times of emergency events.
- Supports Auto-Vehicle Location.

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Residual benefits from executing the project that entities outside of the sponsors may realize if they choose to leverage the data within their own separate project efforts:

Anticipated benefits to the general public

- The base map is to be available to the general public as well, which will allow those using commercialized mapping products for tourism, outdoor recreation, etc., to have greater detail and accuracy in their maps (when those commercial products are based on the State Base Map information).

A more accurate and detailed base map can assist other government agencies in their activities

- Anticipated benefits to state government
 - Sales tax collection
 - Human and animal disease control and tracking
 - Mapping of sex offender residences
 - Essentially, any agency that would have a need to provide or track data spatially on a map would benefit from access to this mapping data set.
- Anticipated benefits to local government
 - Sales and land valuation tax collection
 - Multi-county emergency response
 - Improved management of land use, facilities, infrastructure
- Additionally, Governments will not need to acquire map data via subscription, so can save those costs if they have mapping subscriptions currently

Anticipated benefits to private industry

- Map-based research for economic development
- Improved locating of oil and gas field access points
- Improved siting for pipeline, electric transmission, wind power, telecom
- Improved dispatch potential of private fleets

Cost Estimate:

It is estimated that it will cost \$2 million to \$2.5 million to create the base map. The ND Legislature has allocated \$2.1 million for the 2009-2011 biennium for this project. There is no other funding currently available.

Some federal partners (e.g., FEMA, U.S. Forest Service) may have grant-based or other funding available as the project progresses. Currently these funding sources are to be determined.

This estimate does not include costs to integrate the map into any specific applications or services. (For example, integrating this base map as the new map in the Computer Aided Dispatch system would be a separate project.)

Cost/Benefit Analysis:

Success factors for this project will be difficult to measure in terms of monetary value; they will be

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readily measured in terms of increased efficiency, emergency personnel safety, and public safety.

In terms of monetary value, however, there will be multiple agencies using the geocoding data set, (e.g., Attorney General's sex offender site, Tax Department, Department of Health). Agencies such as this will benefit financially as they will no longer need to fund subscriptions from private firms for access to mapping data because a more accurate data set will be available to them for free from the State.

Project Risks:

- State Radio will operate on a current map that is less accurate than the proposed statewide base map, until the new base map is completed.
- Since the intent of the project is to develop high accuracy roads/address points, the team needs to be sure the imagery is appropriate. During the planning portion of the project, spatial accuracy requirements will be determined.
- Workflow/Data Quality: Having the data collected by one organization and then processed by another creates the potential for data quality resolution issues. Typically one company is responsible for collecting and processing the data and if issues are found the data can be re-flown.
- The project is initiating on a very tight timeframe to get the aerial data collected between "leaf-off" and the first snow of the year. Imagery will not all be able to be collected during Autumn 2009, and will continue during the next opportunity in Spring 2010.
- It is unknown at this time how much it will cost to store the raw photography data as collected and how much it will cost to process the data. Depending on the storage requirements, the cost to store data could increase beyond initial expectations.
- Access/Performance: The most cost-effective and best-performing method of accessing the aerial photography by other systems is unknown at this time.
- Buy-in from local government: Local jurisdictions will be asked to participate, possibly share their existing data, and to maintain data. Jurisdictions may or may not have the resources to perform this work.
- Future maintenance processes will need to be revised – to an extent currently unknown – to support new levels of data accuracy.

Risk of *not* implementing the project:

- An accurate base map is a key piece to all dispatch centers being interoperable. The current mapping system State Radio uses has accuracy problems and dated information. Without this project, technology upgrades to public safety systems cannot be made.